

Lower Lake region, nine in the Upper Lake region, eight in the Upper Mississippi valley, seven in the Lower Mississippi valley, and twelve over the Blue Ridge and Alleghanies.

*Special Rains.*—Remarkably heavy rains occurred on the 3d at Wilmington, Charleston and Savannah; on the 4th at New Orleans and Mobile; on the 12th at Hinsdale, Mass.; on the 24th at Eureka, Nevada; on the 26th at Pittsburgh and Allegheny City, Penn., and at Port Huron, Michigan; on the 27th at Rising Sun, Indiana.

## HUMIDITY.

During the month of July the relative humidity has averaged as follows in the different sections of the country:

On the Gulf and South and East Atlantic States, .75; on the New Jersey coast, .85; in the Lake region, .68; in the Lower Mississippi valley, .70; in Tennessee and the Ohio and Upper Mississippi valley, .62; in the Lower Missouri valley, .58; at the Rocky Mountain stations, .41.

## ATMOSPHERIC TEMPERATURE.

The mean isothermal lines for the month are represented on Chart No. II, and the comparison of the mean temperature of the several districts with that of the mean temperature of July in previous years is given in the table. It will be seen that the temperature has been above the mean in the districts of the Mississippi valley and below it in the districts near the coast; this has been particularly noticeable on the Middle Atlantic and New England coasts and at San Francisco. The range of temperature compared to that of 1873 has diminished slightly on the Gulf coast and increased in the northern sections of the country. The unusual high temperature of 100° prevailed over an extensive region, including Indian Territory, Missouri, Kansas, Nebraska and portions of Iowa and Arkansas on the 25th of the month. The mean temperature at the summit of Pike's Peak was 42°, that at the summit of Mount Washington, 48°.5.

Frosts were reported on the 10th in Colorado, and on the 27th in Minnesota.

## TEMPERATURE OF WATER.

The table on Chart No. III gives the maximum and minimum temperature of water by observations made at the bottom at many of the Signal Service stations on lakes, rivers and coasts. The range of temperature of the water on the Atlantic seaboard has been about five degrees and on the Gulf coast seven degrees. In Lake Erie the range varies from five degrees at Buffalo to fourteen degrees at Cleveland. In Lake Michigan from nine degrees at Chicago to nineteen degrees at Milwaukee, and in Lake Superior from fourteen degrees at Marquette to twenty-one degrees at Duluth. The range averages about fourteen degrees in the Ohio, nine degrees in the Upper Mississippi and four degrees in the Lower Missouri.

The difference between the maximum air temperature and maximum water temperature has been greatest on the coast of Maine and near Lake Superior, where it has averaged thirty degrees; this difference has been least in the Gulf and on the South Atlantic coast, where it has averaged nine degrees. At the stations on the western rivers the temperature of the air has risen from twelve to twenty-five degrees above the highest water temperature.

The minimum air temperature has been lower than the minimum water temperature at nearly all stations, the only exception being at Duluth, where the water temperature